

Timeline for Cassini Rev 169: 2-Way RSS Ring & Atmospheric Occultations

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	ERT UTC OWLT = 1:21:40	SCET	PDT ERT-7hrs 7:00:00	Comments
Spacecraft is Earth Pointed (OTM BU)				
DSS-43: Begin Pre-Cal	4:10:00	2:48:20	21:10:00	
RSSG: Load 1-W, 2-W, and 3-W Frequency Predicts	TBD			
DSS-43: Begin of Track, 3-way with DSS-14	5:10:00	3:48:20	22:10:00	S/C is Earth pointed; X-band downlink signal is detectable
DSS-14: Transmitter OFF	5:20:00		22:20:00	DSS-14 track precedes and overlaps DSS-43
DSS-14: End of Track	5:45:00		22:45:00	
DSS-43: Transmitter ON, 18 kW, LCP	6:00:00	4:38:20	23:00:00	Ramped uplink predicts are used
DSS-34: Begin Pre-Cal	6:10:00	4:48:20	23:10:00	
Ka-Band ON	7:17:02	5:55:22	0:17:02	Spacecraft transition to RSSK op-mode is completed
DSS-34 Begin of Track, 3-way with DSS-14	7:40:00	6:18:20	0:40:00	X-band and Ka-band downlink signals are detectable
DSS-43 and DSS-34: Switch to 1-way	8:03:20		1:03:20	
S-Band ON	8:16:40	6:55:00	1:16:40	S-band downlink signal is also detectable
RNG OFF/TLM OFF	8:16:45	6:55:05	1:16:45	X-band signal level increase
Begin 1-Way Free-Space Baseline	8:16:46	6:55:06	1:16:46	PC/N0 (X70, S70, X34, Ka34) = 54, 42, 48, and 48 dB-Hz
DSS-34: Enable Monopulse	TBD			Enable monopulse only when requested by RS Operations
DSS-43: Begin X- & S-band 2-Way Acquisition	8:43:20	7:21:40	1:43:20	PC/N0 (X-70m, S-70m) = 54, 42 dB-Hz
DSS-34: Begin X- & Ka-band 3-Way Acquisition	8:43:20	7:21:40	1:43:20	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-43: Transmitter OFF	9:35:00	8:13:20	2:35:00	End of uplink period
Start 2-Way & 3-Way Official Free-Space Baseline	9:36:41	8:15:01	2:36:41	PC/N0 (X70, S70, X34, Ka34) = 54, 42, 48, and 48 dB-Hz
Start of ingress ring occultation (Ring F)	10:05:54	8:44:14	3:05:54	Ring F is usually not detectable in real-time
Ring A In	10:10:01	8:48:21	3:10:01	Detectable signals over most of Ring A
In Mid Encke Gap	10:13:38	8:51:58	3:13:38	Signals are briefly back to full strength
Ring A Out	10:26:40	9:05:00	3:26:40	Relatively strong signals in the Cassini Division
Ring B In	10:31:49	9:10:09	3:31:49	Signals will be small or absent over most of Ring B
Ring B Out / Ring C In	11:01:06	9:39:26	4:01:06	Signals detectable; may be briefly blocked by dense ringlets

Ionosphere In (~68,000 km)	11:19:17	9:57:37	4:19:17	Ionospher primarily affects signal frequency
Ring C Out	11:21:59	10:00:19	4:21:59	PC/N0 (X70, S70, X34, Ka34) = 54, 42, 48, and 48 dB-Hz
Upper Troposphere (~0.1° BA)	11:35:35	10:13:55	4:35:35	S/X/Ka signal intensities quickly drop and scintillate
Loss of 3-Way Ka-band signal (~1.15° BA)	11:52:53	10:31:13	4:52:53	Approximate time; Ka-band downlink signal absorbed
Loss of 2-Way & 3-Way X-band signal (~1.35° BA)	11:56:09	10:34:29	4:56:09	Approximate time; X-band downlink signal absorbed
Loss of 2-Way S-band signal	11:57:09	10:35:29	4:57:09	Approximate time
DSS-43: S-band 1-Way Signal Acquisition	11:57:09	10:35:29	4:57:09	Approximate time; S/C AUX-OSC kicks in
Loss of the 1-Way S-band signal (~1.55° BA)	11:59:23	10:37:43	4:59:23	Approximate time; S-band lost to ammonia absorption
Cassini is behind Saturn as seen from Earth				Loss of all downlink signals
DSS-34: End of Track	13:20:00	11:58:20	6:20:00	Effective end of Rev169 experiments
DSS-43: End of Track	13:20:00	11:58:20	6:20:00	Effective end of Rev169 experiments
Ka-Band and S-Band OFF	13:24:01	12:02:21	6:24:01	End of RSS3 Op-Mode
TLM ON/RNG ON	13:24:38	12:02:58	6:24:38	Spacecraft is behind Saturn
End of Rev 169 RSS S/CActivities	13:24:40	12:03:00	6:24:40	Spacecraft turns off Earth point
DSS-34: End Post Cal	13:35:00	12:13:20	6:35:00	
DSS-43: End Post-Cal	13:35:00	12:13:20	6:35:00	

Canberra DSS-34 & DSS-43 related activities

Predicted ring occultation & atmospheric event times are approximate and are based on [LUD trajectory on 7/16/2012](#)

Monopulse strategy is preliminary at this time and is finalized during real-time operations